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27538 7590 08/04/2008

KAPLAN GILMAN GIBSON & DERNIER L.L.P.
900 ROUTE 9 NORTH
WOODBIDGE, NJ 07095

EXAMINER

FAULK, DEVONA E

ART UNIT

PAPER NUMBER

2615

DATE MAILED: 08/04/2008

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/815,451

04/01/2004

Elon Ray Coats

509/12

7779

TITLE OF INVENTION: METHODS AND APPARATUS FOR AUTOMATIC MIXING OF AUDIO SIGNALS

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	\$1440	\$300	\$0	\$1740	11/04/2008

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

I. Review the SMALL ENTITY status shown above.

If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

A. If the status is the same, pay the TOTAL FEE(S) DUE shown above.

B. If the status above is to be removed, check box 5b on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and twice the amount of the ISSUE FEE shown above, or

If the SMALL ENTITY is shown as NO:

A. Pay TOTAL FEE(S) DUE shown above, or

B. If applicant claimed SMALL ENTITY status before, or is now claiming SMALL ENTITY status, check box 5a on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and 1/2 the ISSUE FEE shown above.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

PART B - FEE(S) TRANSMITTAL

**Complete and send this form, together with applicable fee(s), to: Mail Mail Stop ISSUE FEE
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INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

27538 7590 08/04/2008

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Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/815,451	04/01/2004	Elon Ray Coats	509/12	7779

TITLE OF INVENTION: METHODS AND APPARATUS FOR AUTOMATIC MIXING OF AUDIO SIGNALS

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	\$1440	\$300	\$0	\$1740	11/04/2008

EXAMINER	ART UNIT	CLASS-SUBCLASS
FAULK, DEVONA E	2615	381-119000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

- ☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.
- ☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list

- (1) the names of up to 3 registered patent attorneys or agents OR, alternatively, 1 _____
- (2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed. 2 _____
- 3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE (B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent) : ☐ Individual ☐ Corporation or other private group entity ☐ Government

4a. The following fee(s) are submitted:

- ☐ Issue Fee
- ☐ Publication Fee (No small entity discount permitted)
- ☐ Advance Order - # of Copies _____

4b. Payment of Fee(s); (Please first reapply any previously paid issue fee shown above)

- ☐ A check is enclosed.
- ☐ Payment by credit card. Form PTO-2038 is attached.
- ☐ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).

5. Change in Entity Status (from status indicated above)

- ☐ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27. ☐ b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

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Date _____

Typed or printed name _____

Registration No. _____

This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

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27538	7590	08/04/2008	EXAMINER	
KAPLAN GILMAN GIBSON & DERNIER L.L.P. 900 ROUTE 9 NORTH WOODBIDGE, NJ 07095			FAULK, DEVONA E	
			ART UNIT	PAPER NUMBER
			2615	
DATE MAILED: 08/04/2008				

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b) (application filed on or after May 29, 2000)

The Patent Term Adjustment to date is 980 day(s). If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the Patent Term Adjustment will be 980 day(s).

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (<http://pair.uspto.gov>).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

Notice of Allowability

Application No.

10/815,451

Examiner

DEVONA E. FAULK

Applicant(s)

COATS, ELON RAY

Art Unit

2615

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to amendment filed 7/3/08.
2. ☒ The allowed claim(s) is/are 1-3,5,7-12,14 and 16-18.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).
- * Certified copies not received: ____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date ____.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date ____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).**
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date ____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date ____.
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other ____.

DETAILED ACTION

Response to Remarks

1. The applicant has amended the specification to overcome the specification objection set forth in the previous office action.
2. The applicant has amended claims 9 and 18 to overcome the claim objection set forth in the previous office action.
3. The applicant has submitted replacement drawings to overcome the drawing objection set forth in the previous office action.
4. Claims 9 and 18 were indicated as having allowable subject matter and remain in allowable form.
5. Claims 4-9,13-18 were objected to as being dependent upon rejected base claims and indicated as allowable in rewritten in independent form. The applicant has amended claim 1 with subject matter from claims 4 and 6, claim 10 with subject matter from claims 13 and 15.
6. Claims 4,6,13,15 are cancelled.
7. The remaining claims are in allowable form.

EXAMINER'S AMENDMENT

8. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Matthew B. Dernier (Reg. No. 40,989) on 7/21/08.

The claims are to be amended as follows:

Claim 1 is to be amended to recite:

An apparatus, comprising:

an automatic mixer circuit ~~operable to~~ that produces a control signal usable to adjust respective gains of a plurality of audio channels based on an aggregate of input levels of respective audio

I signals of the audio channels; and a compression circuit ~~operable to~~ that reduces the gain of a given one of the audio channels when an input level of the audio signal of that audio channel exceeds a threshold, irrespective of whether the control signal of the automatic mixer would permit the gain to rise higher; and one of:

(i) a summing circuit ~~operable to~~ that produces an error signal that is a difference of a signal indicative of the input level of the audio signal of the given audio channel and the control signal from the automatic mixer circuit; and a voltage controlled amplifier responsive to the error signal to reduce the gain of the given audio channel when the control signal has a greater magnitude than the signal indicative of the input level of the audio signal; or

(ii) a summing circuit ~~operable to~~ that produces an error voltage that is an aggregate of a signal indicative of the input level of the audio signal of the given audio channel and a signal indicative of the threshold; and a voltage controlled amplifier responsive to the error signal to reduce the gain of the given audio channel when a magnitude of the

signal indicative of the input level of the audio signal at least one of approaches and reaches a magnitude of the signal indicative of the threshold.

Claim 2 is to be amended to recite:

The apparatus of claim 1, further comprising a plurality of compression circuits, each ~~operable to reduce~~ compression circuit reducing the respective gain of a respective one of the audio channels when an input level of the respective audio signal of the respective audio channel exceeds a respective threshold, irrespective of whether the control signal of the automatic mixer would permit the respective gain to rise higher.

Claim 9 is to be amended to recite:

An apparatus, comprising: an automatic mixer circuit ~~operable to~~ that produces a control signal usable to adjust respective gains of a plurality of audio channels based on an aggregate of input levels of respective audio signals of the audio channels;
a respective first summing circuit for each audio channel ~~operable to~~ that produces a first error signal that is a difference of a signal indicative of the input level of the audio signal of the respective audio channel and the control signal from the automatic mixer circuit;
a respective second summing circuit for each audio channel ~~operable to~~ that produces a second error signal that is an aggregate of the signal indicative of the input level of the audio signal of the respective audio channel and a signal indicative of a threshold level for the respective audio channel; and
a voltage controlled amplifier for each audio channel that is (i) responsive to the respective first error signal to reduce the gain of the respective audio channel when the

control signal has a greater magnitude than the signal indicative of the input level of the respective audio signal, and (ii) responsive to the respective second error signal to reduce the gain of the respective audio channel when a magnitude of the signal indicative of the input level of the audio signal of the respective audio channel at least one of approaches and reaches a magnitude of the signal indicative of the threshold level for the respective audio channel, irrespective of whether the control signal of the automatic mixer would permit the gain to rise higher.

Allowable Subject Matter

9. Claims 1-3,5,7-12,14,16-18 are allowed.

9. The following is a statement of reasons for the indication of allowable subject matter: Regarding claims 1, 9,10 and 18, prior art Dugan discloses an automatic mixer circuit (master processor 718) operable to produce a control signal usable to adjust respective gains of a plurality of audio channels based on an aggregate of input levels of respective audio signals of the audio channels (master processor 718 produces output 715 which reads on control signal; 109 is the sum of the gain sense currents from all the inputs to 110; column 10, lines 33-45). Prior art Hagiwara (US 2004/0008851) discloses a digital compressor for multi-channel audio system. Prior art Yamazaki (US 6,501,717) discloses an apparatus and method for processing digital audio signals of plural channels to derive combined signals with over flow prevented. Prior art Generally the prior art teaches of mixing.

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Regarding claim 1, the prior art or combination thereof fails to disclose or make obvious (i) a summing circuit that produces an error signal that is a difference of a signal indicative of the input level of the audio signal of the given audio channel and the control signal from the automatic mixer circuit; and a voltage controlled amplifier responsive to the error signal to reduce the gain of the given audio channel when the control signal has a greater magnitude than the signal indicative of the input level of the audio signal; or

(ii) a summing circuit that produces an error voltage that is an aggregate of a signal indicative of the input level of the audio signal of the given audio channel and a signal indicative of the threshold; and a voltage controlled amplifier responsive to the error signal to reduce the gain of the given audio channel when a magnitude of the signal indicative of the input level of the audio signal at least one of approaches and reaches a magnitude of the signal indicative of the threshold.

Regarding claim 9, the prior art fails to disclose or make obvious a respective first summing circuit for each audio channel that produces a first error signal that is a difference of a signal indicative of the input level of the audio signal of the respective audio channel and the control signal from the automatic mixer circuit; a respective second summing circuit for each audio channel that produces a second error signal that is an aggregate of the signal indicative of the input level of the audio signal of the respective audio channel and a signal indicative of a threshold level for the respective audio channel; and a voltage controlled amplifier for each audio channel that is (i)

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responsive to the respective first error signal to reduce the gain of the respective audio channel when the control signal has a greater magnitude than the signal indicative of the input level of the respective audio signal, and (ii) responsive to the respective second error signal to reduce the gain of the respective audio channel when a magnitude of the signal indicative of the input level of the audio signal of the respective audio channel at least one of approaches and reaches a magnitude of the signal indicative of the threshold level for the respective audio channel, irrespective of whether the control signal of the automatic mixer would permit the gain to rise higher.

Regarding claim 10, the prior art or combination thereof fails to disclose or make obvious (i) producing an error signal that is a difference of a signal indicative of the input level of the audio signal of the given audio channel and the control signal (the control signal being based on an aggregate of input levels of respective audio channels); and automatically responding to the error signal to reduce the gain of the given audio channel when the control signal has a greater magnitude than the signal indicative of the input level of the audio signal; or

(ii) producing an error voltage that is an aggregate of a signal indicative of the input level of the audio signal of the given audio channel and a signal indicative of the threshold; and automatically responding to the error signal to reduce the gain of the given audio channel when a magnitude of the signal indicative of the input level of the audio signal at least one of approaches and reaches a magnitude of the signal indicative of the threshold.

Regarding claim 18, the prior art or combination thereof fails to disclose or make obvious producing a first error signal in each of at least some of the audio channels that is a difference of a signal indicative of the input a level of the audio signal of the respective audio channel and the control signal; producing a second error signal in each of the at least some audio channels that is an aggregate of the signal indicative of the input level of the audio signal of the respective audio channel and a signal indicative of a threshold level for the respective audio channel; automatically responding to the respective first error signal to reduce the gain of the respective audio channel when the control signal has a greater magnitude than the signal indicative of the input level of the respective audio signal: and automatically responding to the respective second error signal to reduce the gain of the respective audio channel when a magnitude of the signal indicative of the input level of the audio signal of the respective audio channel at least one of approaches and reaches a magnitude of the signal indicative of the threshold level for the respective audio channel, irrespective of whether the control signal of the automatic mixer would permit the gain to rise higher.

Therefore the prior art or combination thereof fails to disclose or make obvious an apparatus, a method as claimed.

Claims 2,3,5,7,8,11,12,14,16,17 are allowed due to dependencies on claims 1,10.

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Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Devona E. Faulk whose telephone number is 571-272-7515. The examiner can normally be reached on 8 am - 5 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vivian Chin can be reached on 571-272-7848. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Devona E. Faulk/

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Patent Examiner, Art Unit 2615

7/17/08

/Vivian Chin/

Supervisory Patent Examiner, Art Unit 2615